

## CLAIMS

What is claimed is:

1. A protection structure of a first area of a semiconductor wafer including a lightly-doped substrate of a first conductivity type against high-frequency noise likely to be injected from components formed in the upper portion of a second area of the wafer, comprising:  
a very heavily-doped wall of the first conductivity type having substantially the depth of said upper portion, wherein said wall is divided into segments, each of which is connected to a ground plane via an assembly of flip chip type.
2. The protection structure of claim 1 wherein the first conductivity type is type P.
3. The protection structure of claim 1 wherein the impedance between two successive segments is greater than the grounding impedance of each segment.
4. The protection structure of claim 1 wherein the isolating wall is surrounded with a medium-doped area of the first conductivity type.
5. A device comprising:  
a semiconductor substrate; and  
a plurality of heavily doped segments of a first conductivity type formed in an upper portion of the semiconductor substrate, the segments configured to form a broken line enclosing a region of the semiconductor substrate, each of the segments being connected to a circuit ground.
6. The device of claim 5, further including a plurality of metalizations, each of the metalizations formed over and in contact with a respective one of the plurality of heavily doped segments.

7. The device of claim 6 wherein the metalizations are wider than the heavily doped segments.

8. The device of claim 6 wherein a solder ball is formed on each of the plurality of metalizations.

9. The device of claim 5 wherein the impedance between any two adjacent segments is greater than the grounding impedance of each segment.

10. The device of claim 5 wherein a region of the semiconductor substrate surrounding the segments is doped at a medium level of the first conductivity type, the region forming a continuous line superimposed by the broken line of heavily doped segments.

11. A method comprising:

generating a high frequency noise signal in a first integrated circuit formed in a semiconductor substrate; and

blocking the high frequency noise signal from interfering with a second integrated circuit formed in the substrate through the use of a protective structure formed in the substrate, the structure having a plurality of heavily doped segments of a first conductivity type formed in an upper portion of the semiconductor substrate, the segments configured to form a broken line separating the second circuit in the substrate from the first circuit in the substrate, each of the segments being connected to a ground plane.

12. The method of claim 11 wherein the protective structure surrounds the second circuit.

13. The method of claim 11 wherein the protective structure further comprises a region of medium doping of the first conductivity type, the region forming a continuous line,

